

09/615,971

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS**

- 
1. (Original) A method for tracking multiple objects in a video sequence comprising:  
selecting an initial configuration comprising a plurality of objects;  
predicting a current configuration; and  
computing a likelihood for the current configuration.
  2. (Original) The method of claim 1 wherein said predicting step comprises performing an object level prediction.
  - AI 3. (Original) The method of claim 1 wherein said predicting step comprises performing a configuration level prediction.
  4. (Original) The method of claim 3 wherein said configuration level prediction handles object addition and deletion from a current configuration.
  5. (Original) The method of claim 1 wherein the predicting step comprises:  
determining a percentage of the objects that are covered by the current configuration;  
determining a number of current configurations that correspond to the objects;  
and  
maximizing said percentage and minimizing said number to identify an optimal current configuration.
  6. (Currently amended) The method of claim 5 wherein said percentage determining

09/615,971

step comprises solving:

$$\gamma = \frac{|A \cap (\bigcup_{i=1}^m B_i) + b|}{|A| + b}$$

7. (Currently amended) The method of claim 5 wherein said percentage determining step comprises solving:

$$\xi = \frac{|A \cap (\bigcup_{i=1}^m B_i) + c|}{(\bigcup_{i=1}^m B_i) + a}$$

8. (Original) The method of claim 1 wherein multiple objects in a video sequence are represented by said configuration comprising a plurality of modeled objects.

9. (Original) A method of producing probability distributions of states for multiple objects in a video sequence comprising:

performing hierarchical sampling of at least one frame of video in said video sequence, wherein said sampling is performed in an object configuration and individual object states; and

repeating said sampling for each frame of video in said video sequence to track objects within the video sequence.

10. (Currently amended) The method of claim [[1]] 9 wherein said object configuration represents a plurality of objects within a scene.

11. (Original) A computer readable medium containing a program that, when executed by a processor, causes an image processing system to perform a method comprising:

selecting an initial configuration comprising a plurality of objects;

predicting a current configuration; and

09/615,971

computing a likelihood for the current configuration.

12. (Original) The method of claim 11 wherein said predicting step comprises performing an object level prediction.

13. (Original) The method of claim 11 wherein said predicting step comprises performing a configuration level prediction.

14. (Original) The method of claim 13 wherein said configuration level prediction handles object addition and deletion from a current configuration.

AI  
cont 15. (Original) The method of claim 11 wherein the predicting step comprises:  
determining a percentage of the objects that are covered by the current configuration;  
determining a number of current configurations that correspond to the objects;  
maximizing said percentage and minimizing said number to identify an optimal current configuration.

16. (Currently amended) The method of claim [[11]] 15 wherein said percentage determining step comprises solving:

$$\gamma = \frac{|A \cap (\bigcup_{i=1}^m B_i) + b|}{|A| + b}$$

17. (Currently amended) The method of claim 15 wherein said percentage determining step comprises solving:

$$\xi = \frac{|A \cap (\bigcup_{i=1}^m B_i) + c|}{(|\bigcup_{i=1}^m B_i| + a)}$$

09/615,971

18. (Original) The method of claim 11 wherein multiple objects in a video sequence are represented by said configuration comprising a plurality of modeled objects.

---